

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A method of producing a cladding tube for nuclear fuel for a nuclear boiling water reactor, which method comprises the following steps:

forming a tube which comprises an outer cylindrical component mainly containing zirconium and an inner cylindrical component metallurgically bonded to the outer component, wherein also the inner component mainly contains zirconium, wherein the material compositions of the inner component and the outer component are selected such that they differ from each other and such that the inner component has a lower recrystallization temperature than the outer component; and

after that the cladding tube has been formed finally annealing the cladding tube at a temperature and for a time such that the inner component substantially completely recrystallizes and such that the outer component partly recrystallizes but to a lower extent than the inner component, wherein said final annealing is carried out such that the degree of recrystallization in the outer component is higher than 50 %.

2. (canceled)

3. (currently amended) A method according to claim [[2]] 1, wherein said final annealing is carried out such that the degree of recrystallization in the inner component is substantially 100 % and the degree of recrystallization in the outer component is between 50 % and 96%.

4. (previously presented) A method according to claim 1, wherein the inner component does not contain more than 1500 ppm Fe.

5. (previously presented) A method according to claim 1, wherein the inner component does not contain more than 1000 ppm O.

6. (previously presented) A method according to claim 1, wherein the outer component has a composition substantially comprising Zircaloy 2 or Zircaloy 4.

7. (currently amended) A method according to claim 1, wherein the inner component contains between 0.1 and [[01]] 0.7 percentage by weight Sn.

8. (previously presented) A method according to claim 7, wherein the inner component contains 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not

exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors.

9. (previously presented) A method according to claim 1, wherein the inner component has a thickness such that it constitutes between 3% and 30% of the total thickness of the cladding tube.

10. (previously presented) A method according to claim 1, wherein the final annealing is carried out at a temperature of between 485°C and 550°C.

11. (previously presented) A method according to claim 1, wherein the final annealing is carried out during 1 h to 6h.

12. (previously presented) A method of using of a cladding tube, the method comprising:

producing the cladding tube according to the method of claim 1; and using the cladding tube in a fuel assembly for a nuclear boiling water reactor.

13. (previously presented) A cladding tube for nuclear fuel for a nuclear boiling water re-actor, which cladding tube comprises:

an outer cylindrical component mainly containing zirconium; and
an inner cylindrical component which mainly contains zirconium and
which is metallurgically bonded to the outer component, wherein the material
compositions of the inner component and the outer component differ from each
other and are such that the inner component has a lower re-crystallization
temperature than the outer component; wherein
the inner component has a substantially completely recrystallized structure
and the outer component has a structure such that it is partly recrystallized but not
to the same extent as the inner component, wherein the degree of recrystallization
in the outer component is higher than 50 %.

14. (canceled)

15. (currently amended) A cladding tube according to claim [[14]] 13, wherein the
degree of recrystallization in the inner component is substantially 100% and the
degree of recrystallization in the outer component is between 50% and 96 %.

16. (previously presented) A cladding tube according to any of the claim 13,
wherein the inner component does not contain more than 1500 ppm Fe.

17. (previously presented) A cladding tube according to any of the claim 13, wherein the inner component does not contain more than 1000 ppm O.

18. (previously presented) A cladding tube according to any of the claim 13, wherein the outer component has a composition substantially comprising Zircaloy 2 or Zircaloy 4.

19. (previously presented) A cladding tube according to any of the claim 13, wherein the inner component contains between 0.1 and 0.7 percentage by weight Sn.

20. (previously presented) A cladding tube according to claim 19, wherein the inner component contains 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors.

21. (previously presented) A cladding tube according to claim 13, wherein the inner component has a thickness such that it constitutes between 3 % and 30 % of the total thickness of the cladding tube.

22. (previously presented) A fuel assembly for a nuclear boiling water reactor, comprising:
an enclosing tube; and
a plurality of cladding tubes according to claim 13 filled with nuclear fuel suitable for such cladding tubes for a boiling water reactor, wherein said plurality of cladding tubes are arranged inside said enclosing tube.

23. (currently amended) A method according to claim [[2]] 1, wherein said final annealing is carried out such that the degree of recrystallization in the inner component is 100 % and the degree of recrystallization in the outer component is between 50 % and 96%.

24. (new) A method according to claim 1, wherein the outer component has a composition consisting of Zircaloy 2 or Zircaloy 4.

25. (currently amended) A cladding tube according to claim [[14]] 13, wherein the degree of recrystallization in the inner component is 100% and the degree of recrystallization in the outer component is between 50% and 96 %.

26. (new) A cladding tube according to any of the claim 13, wherein the outer component has a composition consisting of Zircaloy 2 or Zircaloy 4.